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## Product Guide Specification

Specifier Notes: This product guide specification is written in Construction Specifications Institute (CSI) 3-Part Format in accordance with *The CSI Construction Specifications Practice Guide, MasterFormat, SectionFormat, and PageFormat*.

This Section must be carefully reviewed and edited by the Architect to meet the requirements of the Project and local building code. Coordinate this Section with Conditions of the Contract, Division 01, other specification sections, and the Drawings. Delete all Specifier Notes after editing this Section.

Section numbers and titles are based on *MasterFormat 2018 Edition*.

### SECTION 04 42 00

#### EXTERIOR STONE CLADDING

Specifier Notes: This Section covers Stoneworks Inc "Trimstone" exterior, factory-fabricated, lightweight, stone paneling system, composed of natural stone veneer bonded to high-strength, aviation-grade, aluminum honeycomb panels.

Each lightweight stone paneling system is custom designed by Stoneworks Inc. for the specific application. Consult Stoneworks Inc for assistance in editing this Section for the specific application.

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Exterior, factory-fabricated, lightweight, stone paneling system.

## 1.2 RELATED REQUIREMENTS

Specifier Notes: Edit the following list of related sections as necessary. Limit the list to sections with specific information that the reader might expect to find in this Section, but is specified elsewhere.

- A. Section 07 92 00 – Joint Sealants.

## 1.3 REFERENCE STANDARDS

Specifier Notes: List reference standards used elsewhere in this Section, complete with designations and titles.

- A. AAMA/WDMA/CSA 101/I.S.2/A440 – North American Fenestration Standard/Specification for windows, doors, and skylights.
- B. ASTM B 117 – Standard Practice for Operating Salt Spray (Fog) Apparatus.
- C. ASTM C 67 – Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
- D. ASTM C 297 / C 297M – Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions.
- E. ASTM C 365 / C 365M – Standard Test Method for Flatwise Compressive Properties of Sandwich Cores.
- F. ASTM C 393 / C 393M – Standard Test Method for Core Shear Properties of Sandwich Constructions by Beam Flexure.
- G. ASTM D 1781 – Standard Test Method for Climbing Drum Peel for Adhesives.
- H. ASTM E 72 – Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
- I. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
- J. ASTM E 108 – Standard Test Methods for Fire Tests of Roof Coverings.
- K. ASTM E 488 – Standard Test Methods for Strength of Anchors in Concrete Elements.
- L. ASTM E 1886 – Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
- M. ASTM E 1996 – Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
- N. FBC TAS 201 – Impact Test Procedures.

- O. FBC TAS 202 – Criteria for Testing Impact and Nonimpact Resistant Building Envelope Components Using Uniform Static Air Pressure.
- P. FBC TAS 203 – Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.
- Q. Marble Institute of America (MIA) Dimension Stone Design Manual.
- R. NFPA 255 – Standard Method of Test of Surface Burning Characteristics of Building Materials.
- S. NFPA 259 – Standard Test Method for Potential Heat of Building Materials.
- T. UBC 8-1 – Test Method for Surface-Burning Characteristics of Building Materials.
- U. UL 723 – Test for Surface Burning Characteristics of Building Materials.
- V. UL 790 – Standard Test Methods for Fire Tests of Roof Coverings.

#### **1.4 PREINSTALLATION MEETINGS**

Specifier Notes: Edit the Preinstallation Meetings article as necessary. Delete this article if not required.

- A. Convene preinstallation meeting [1 week] [2 weeks] before start of installation of lightweight stone paneling system.
- B. Require attendance of parties directly affecting Work of this Section, including Contractor, Architect, installer, and manufacturer’s representative.
- C. Review materials, installation, adjusting, cleaning, protection, and coordination with other work.

#### **1.5 SUBMITTALS**

Specifier Notes: Edit the Submittals article as necessary. Delete submittals not required.

- A. Submittals: Comply with Division 01.
- B. Product Data: Submit manufacturer’s product data, including installation instructions.
- C. Shop Drawings: Submit manufacturer’s shop drawings, including plans, elevations, sections, and details, indicating dimensions, tolerances, materials, components, fabrication, fasteners, hardware, and finish.
- D. Samples: Submit manufacturer’s sample of lightweight stone paneling system.
  - 1. Sample Size: Minimum 12 inches by 12 inches.
- E. Manufacturer’s Certification: Submit manufacturer’s certification that materials comply with specified requirements and are suitable for intended application.

- F. Test Reports: Submit manufacturer's test reports from testing performed by qualified, independent testing laboratories.
- G. Manufacturer's Project References: Submit manufacturer's list of successfully completed lightweight stone paneling system projects, including project name and location, name of architect, and type and quantity of lightweight stone paneling systems furnished.
- H. Installer's Project References: Submit installer's list of successfully completed lightweight stone paneling system projects, including project name and location, name of architect, and type and quantity of lightweight stone paneling systems installed.
- I. Cleaning Instructions: Submit manufacturer's cleaning instructions.
- J. Warranty Documentation: Submit manufacturer's standard warranty.

## 1.6 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
  1. Manufacturer regularly engaged, for past 10 years, in the manufacturing of lightweight stone paneling systems of similar type to that specified.
  2. Available to provide manufacturer's representative during installation of lightweight stone paneling system.
- B. Installer's Qualifications:
  1. Installer regularly engaged, for past 5 years, in installation of lightweight stone paneling systems of similar type to that specified.
  2. Employ persons trained for installation of lightweight stone paneling systems.
  3. Approved by manufacturer.

Specifier Notes: Edit mock-ups as necessary. Delete if not required.

- C. Mock-ups: Construct mock-ups of lightweight stone paneling system for evaluation of factory fabrication and installation.
  1. Construct mock-ups using same materials for use in the Work.
  2. Install mock-ups at locations determined by Architect.
  3. Do not proceed until factory fabrication and installation of mock-ups are approved by Architect.
  4. Approved Mock-ups: Standard for factory fabrication and installation of lightweight stone paneling system.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling Requirements:
  1. Store and handle materials in accordance with manufacturer's instructions.
  2. Keep panels in manufacturer's original crates and packaging until installation.

3. Store panels in clean, dry area.
4. Store and handle panels vertically to prevent bending, warping, or damage.
5. Do not stack panels.
6. Protect panels and finish during storage, handling, and installation to prevent damage, scratches, and stains.

## **1.8 WARRANTY**

- A. Warranty Period: 10 years from date of Substantial Completion for delamination of panel components.

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURER**

- A. Manufacturer: Stoneworks Inc, 6840 SW 81 Terrace, Miami, Florida 33143. Phone 305-666-6676. Fax 305-666-7675. Website [www.trimstonepanels.com](http://www.trimstonepanels.com). E-mail [Clement@stoneworksinc.com](mailto:Clement@stoneworksinc.com).
- B. Substitutions: Not permitted.

### **2.2 TEST RESULTS**

- A. Lightweight Stone Paneling System: "Trimstone".
  1. Transverse Load Test, ASTM E 72:
    - a. Deflection at 215 psf: 0.49 inch.
    - b. Ultimate Load: 630 psf.
  2. Surface Burning Characteristics, ASTM E 84 (NFPA 255, UBC 8-1, UL 723):
    - a. Flame Spread Rated: Class A.
    - b. Smoke Developed Rated: Class A.
  3. Fire Test, ASTM E 108 (UL 790), Acceptance Level: Class A.
  4. Flatwise Tensile Strength Test, ASTM C 297, Average Ultimate Strength:
    - a. As Received: 437 psi. Failure occurred within the stone (limestone).
    - b. After 100 Cycles of Freeze-Thaw, ASTM C 67: 415 psi. Failure occurred within the stone (limestone).
  5. Potential Heat, NFPA 259: 830.9741 Btu/lb.
  6. Large Missile Impact Test, FBC TAS 201, ASTM E 1886: Sample was intact and all parts were securely in place at conclusion of test.
  7. Uniform Static Air Pressure Test, FBC TAS 202: Sample successfully sustained maximum positive and negative test loads of 180 PSF. Sample meets or exceeds requirements of AAMA/WDMA/CSA 101/I.S.2/A440. Sample was structurally intact, operable, and all parts were securely in place at conclusion of test.
  8. Air Infiltration Test, FBC TAS 202: Sample meets or exceeds requirements of AAMA/WDMA/CSA 101/I.S.2/A440. Sample was structurally intact, operable, and all parts were securely in place at conclusion of test.
  9. Water Resistance Test, FBC TAS 202: Sample meets or exceeds requirements of AAMA/WDMA/CSA 101/I.S.2/A440. Sample was structurally intact, operable, and all parts were securely in place at conclusion of test.

10. Cyclic Wind Pressure Loading Test, FBC TAS 203, ASTM E 1996: Sample was intact and all parts were securely in place at conclusion of test.

B. Honeycomb Panels: Plascore, Inc. "AA5.2-95".

1. Salt Spray Exposure Test, ASTM B 117, 30 days: Passes without weight loss greater than 125 mg per sq ft of exposed foil area.
2. Flatwise Tensile Strength Test, ASTM C 297: 998 psi (6.88 N/mm<sup>2</sup>).
3. Climbing Drum Test, ASTM D 1781: 92 lbf (407 N).
4. Stabilized Compressive Strength Test, ASTM C 365: 749 psi (5.16 N/mm<sup>2</sup>).
5. Flexural Rigidity Test, ASTM C 393: 17,776 lb-in<sup>2</sup> (4.83 N-mm<sup>2</sup>).
6. Peak Load, 1-inch-thick panel: 360 lbs (1.60 kN).

C. T-Nut Threaded Inserts:

1. Diameter: 5/16 inch.
2. Tension Strength of Embedded T-Nut in Composite Stone Panel, ASTM E 488: Ultimate Load 1212 Lbs.
3. Shear Strength of Embedded T-Nut in Composite Stone Panel, ASTM E 488: Ultimate Load 1886 Lbs.

### 2.3 LIGHTWEIGHT STONE PANELING SYSTEM

Specifier Notes: Each lightweight stone paneling system is custom designed by Stoneworks Inc. for the specific application.

A. Lightweight Stone Paneling System: "Trimstone".

1. Description: Exterior, factory-fabricated, lightweight, stone paneling system, composed of natural stone veneer bonded by 2-part, high-strength, epoxy resin to high-strength, aviation-grade, aluminum honeycomb panels.

Specifier Notes: Specify total panel unit weight and thickness.

2. Total Panel Unit Weight: \_\_\_\_\_ psf.
3. Total Panel Thickness: \_\_\_\_\_ inch, plus or minus 1/16 inch.

Specifier Notes: Stone may be supplied by either Stoneworks Incor by the Owner. Consult Stoneworks Inc for information regarding stone type, source, color, thickness, hardness, and finish required for the specific application.

B. Stone:

1. Type: [Marble] [Granite] [Limestone] [Travertine] [Onyx] [\_\_\_\_\_].
2. Source: \_\_\_\_\_.
3. Color: \_\_\_\_\_.
4. Thickness: [3/16 inch] [\_\_\_\_\_ inch], plus or minus 1/16 inch.
5. Hardness, MOHS Scale: \_\_\_\_\_.
6. Edges: Indicated on the Drawings.
7. Finish: [Polished] [Honed] [\_\_\_\_\_].

Specifier Notes: Consult Stoneworks Inc for information regarding honeycomb panels required for the specific application.

- C. Honeycomb Panels:
  - 1. Material: Plascore, Inc. "AA5.2-95" honeycomb panels.
    - a. Aluminum Alloy 3003.
  - 2. Bonded with epoxy to back of stone.
  - 3. Average Weight: Approximately 0.75 psf.
  - 4. Thickness: 3/4 inch, plus or minus 0.02 inch.
  - 5. Honeycomb Structure: Corrosion-protected, 1/4-inch-cell aluminum core.
  - 6. Fiberglass Skins: Woven 0.018-inch fiberglass skin with flame-retardant epoxy resin.

Specifier Notes: Consult Stoneworks Inc for information regarding interlocking channel brackets required for the specific application.

- D. Interlocking Channel Brackets:
  - 1. Material: Aluminum extrusion, Alloy 6063-T6.
  - 2. Factory installed on back of honeycomb panels with:
    - a. T-Nut Threaded Inserts: Set in epoxy.
    - b. Truss-head screws.
    - c. Nylon washers.

## 2.4 ACCESSORIES

- A. Joint Sealants:
  - 1. Specified in Section 07 92 00.
  - 2. Compatible with lightweight stone paneling system.
  - 3. Backer rods.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine surfaces and areas to receive lightweight stone paneling system.

Specifier Notes: Edit the following sentence for the specific application.

- B. Verify surfaces to support lightweight stone paneling system are clean, dry, flat, plumb, level, square, stable, rigid, of proper dimensions, and capable of supporting the weight.
- C. Notify Architect of conditions that would adversely affect installation or subsequent use.
- D. Do not begin installation until unacceptable conditions are corrected.
- E. Field Measurements:

1. Verify actual measurements and openings by field measurements before factory fabrication.
2. Confirm recorded measurements on shop drawings.
3. Coordinate field measurements and factory fabrication schedule with construction progress to avoid construction delays.

### **3.2 INSTALLATION**

- A. Install lightweight stone paneling system in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Install lightweight stone paneling system plumb, level, square, and true to line.
- C. Anchor lightweight stone paneling system securely in place to supports.
- D. Install lightweight stone paneling system weathertight.
- E. Tolerances: Install lightweight stone paneling system within manufacturer's installation tolerances.
- F. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
- G. Joint Sealants: Apply joint sealants and backer rods as specified in Section 07 92 00.

### **3.3 ADJUSTING**

- A. Repair minor damages to lightweight stone paneling system in accordance with manufacturer's instructions, MIA Dimension Stone Design Manual, and as approved by Architect.
- B. Remove and replace with new material, damaged components that cannot be successfully repaired, as determined by Architect.

### **3.4 CLEANING**

- A. Clean lightweight stone paneling system promptly after installation in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials or methods that could damage panels or finish.

### **3.5 PROTECTION**

- A. Protect installed lightweight stone paneling system to ensure that, except for normal weathering, panels will be without damage or deterioration at time of Substantial Completion.

**END OF SECTION**